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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,868	02/08/2002	Koji Tanimoto	016907-1362	8355
22428	7590	11/21/2003	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,868

Applicant(s)

TANIMOTO ET AL.

Examiner

Hai C Pham

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A.W

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 12-16 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/461,210.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

FINAL REJECTION

Response to Amendment

1. Applicants' reply filed on 09/12/03 has included claims 8-11 in the Amendment to the Claims section, although claims 8 through 11 have been cancelled per Preliminary Amendment filed on 02/08/02. Applicants further indicate that all the listed claims 1 through 16 are pending in this Application. The above claims 8-11 are not entered per "Preliminary Amendment". Applicants are requested to clarify the status of claims 8 through 11 in their next reply.

Claim Objections

2. The following claims are objected to because of the following informalities:

Claim 1:

- Line 9, "said beam position detector generating *an* whose analog level *which* is continuously changed" should read --said beam position detector generating a signal whose analog level is continuously changed--;
- Line 15, "said *first* beam position detector" should read --said beam position detector-- to keep the claimed terminologies consistent.

Claim 4:

- Lines 19-20, "beam *passage* position *sensing means*" should read --beam position detector-- to keep the claimed terminologies consistent.

Claim 7:

- Starting at line 14, "an output which continuously increases with a variation in the passage position of the light beam" should read --an output which continuously increases with a variation in the passage position of the light beam in the sub-scanning direction--, which would clearly describe the shape of the sixth beam position detector without any ambiguity.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 4 and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4:

- The following limitation "said controller controls the passage position of the light beam to a preset position based on the digital signal converted by said converting means (emphasis added)" at line 22 appears to be ambiguous in that it is unclear whether the above preset position in claim 4 is the same as the preset position recited in the base claim 1. However, the added limitations as recited in claim 4 wherein the analog signal generated by the beam position detector is converted into a digital signal based on which the controller controls the passage position of the light beam to a preset position, indicates that the

control of the beam passage position is still based on the same analog signal but processed into a digital form. Therefore, it is suggested to change "a preset position" in claim 4 to --said preset position--.

Claim 5:

- Similarly, the following limitation "said controller controls the passage position of the light beam to a preset position based on the results of detection of said second and third beam position detectors (emphasis added)" at line 24 appears to be ambiguous in that it is unclear whether the above preset position is the same as the preset position recited earlier at line 13 within claim 5. However, it is understood that the first beam position detector is configured to be a pair of second and third beam position detectors, namely SA and SG as shown in claim 9, therefore the "results of detection of said second and third beam position detectors" are the actual "result of detection of said first beam position detector". Therefore, the "preset position" should be the same, and the limitation "a preset position" at line 24 should read --said preset position--.

Claims 6 and 7 are dependent from claim 5 above, and are therefore indefinite.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshikawa et al. (U.S. 5,982,402).

Yoshikawa et al., an acknowledged prior art, discloses a color image forming apparatus comprising a light beam light beam emitting means (38-1) for outputting a light beam, a beam scanner (polygon mirror 44-1) for reflecting the light beam output from said light beam emitting device towards a to-be-scanned surface (16-1) to scan the to-be-scanned surface by use of the light beam in a main scanning direction, a first beam position detector (the optical sensor 60-1 having a triangular shape delimited by the triangular window 54-1) for detecting the light beam scanned on the to-be-scanned surface by said beam scanner and generating a signal whose analog level is continuously changed with a variation in the passage position in a sub-scanning direction perpendicular to the main scanning direction of the light beam (the optical sensor 60-1 outputs a current [by nature] whose intensity level depends on the incident time of the laser beam, the output current is then converted by the current/voltage

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converter 410 into a voltage signal [a signal having an analog level] to be compared to a reference voltage V_{ref} [another signal having an analog level] whose comparison outcome is waveform-adjusted into a detection signal having a pulse width equal to the excess over the reference voltage as shown by one of the detection signals 84, 90, 95 or 100 whose width is dictated by the passage position of the light beam over the optical sensor 60-1 with respect to the sub-scanning direction) (see Figs. 9 and 6A-6D) (see col. 6, lines 27-63 and col. 7 line 66 to col. 8, line 18), and a controller (control circuit 300) for controlling the position of the light beam scanned by said beam scanner on the to-be-scanned surface to a preset position based on the result of detection of said first beam position detector.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. in view of Tanimoto et al. (EP 0 797 343 A2).

Yoshikawa et al. discloses all the basic limitations of the claimed invention except for the second and third beam position detectors, the integrating means and the converting means.

Tanimoto et al., an acknowledged prior art, discloses all the basic limitations of the claimed invention including a plurality of light beam emitting devices (31a-31d), a beam scanner (36), light beam passage position changing means (33a-33d) for changing the passage position of the light beam in the sub-scanning direction, a controller determining one of the plurality of light beams as a reference beam and changing the relative passage position of the remaining light beams with respect to the passage position of the reference light beam by use of said light beam passage position changing means, a second beam position detector (S1) generating a first timing signal, an integrating means (62), a third beam position detector (S2) generating a second timing signal, a converting means (63) for converting the result of integration in response to the second timing signal.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Yoshikawa et al. with the aforementioned teachings of Tanimoto et al. The motivation for doing so would have been to determine the time frame during which the light beam would accurately detected.

Allowable Subject Matter

9. Claim 5 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, second paragraph, set forth in this Office action.

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10. Claims 6-7 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The primary reason for the indication of the allowability of the claims 5-7 have been indicated in the previous Office action dated 06/14/03.

Response to Arguments

12. Applicant's arguments filed 09/12/03 have been fully considered but they are not persuasive.

13. Contrary to Applicants' remark regarding the teaching of Yoshikawa et al. where "the pulse width of a signal output from a beam detecting means 60-1 varies continuously" (page 13, next to the last paragraph) indicating that the output signal generated by the beam detecting means 60-1 is in a digital form having a pulse width varying with the position of the laser beam in the sub-scanning direction, Yoshikawa et al. does clearly teach that the actual output signal of beam detecting means 60-1 is a current signal (inherent to any sensor device), which is then converted into a voltage signal having an analog level corresponding to the incident time of the laser beam (see Fig. 9). The output voltage signal is compared to a reference voltage V_{ref} and the comparison outcome is waveform-adjusted into a detection signal (pulse 84, Fig. 6A) having a pulse width equal to the excess over the reference voltage. Applicants thus refer to the processed output signal of the beam detecting means 60-1 but not its actual analog output signal.

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14. Applicants further indicate on page 14 that the invention makes use of a D/A converter unit 61 for performing level shifting and/or of the differential amplifier 60 for increasing the amplification factor in order to enhance the accuracy of the processing/integration of analog signals, and that the above features are not taught by either Yoshikawa et al. and Tanimoto et al. However, it is noted that the feature upon which Applicants rely (i.e., D/A converter unit 61 for performing level shifting) is not recited in the rejected claims 2-4. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). On the other hand, Tanimoto et al. does teach the integration of the analog signal as well as the use of the differential amplifier (61, Fig. 5) for increasing the amplification factor.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

November 20, 2003